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| 09/755,659      | 01/05/2001  | Tao Chen             | PA000155            | 4956             |

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Qualcomm Incorporated  
Patents Department  
5775 Morehouse Drive  
San Diego, CA 92121-1714

EXAMINER

NG, CHRISTINE Y

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2663

DATE MAILED: 04/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/755,659

Applicant(s)

CHEN ET AL.

Examiner

Christine Ng

Art Unit

2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 19, 20 and 22-26 is/are rejected.
- 7) ☒ Claim(s) 9, 11-18 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 22, 23 and 25 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 recites the limitation "the signaling" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the interruption" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 23 recites the limitation "the interruption" in lines 2-3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites the limitation "the power control unit" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. The claim also has no limitations.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 6, 10, 20 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,249,683 to Lundby et al.

Referring to claim 1, Lundby et al discloses in Figures 1C and 2C a method for adjusting transmit power levels of a plurality of transmissions in a wireless communication system. The method comprises:

Receiving a first indication (Figure 2C, Element 230A) of a received quality of a first transmission (Figure 1C, Element 120). Forward link power control commands based on the signal-to-noise ratio or frame error rate of the data stream 120 are generated at the transmitter; the commands are extracted as power control bits 230A at the receiver. Refer to Column 12, lines 26-30 and Column 22, lines 26-32.

Adjusting the transmit power level of the first transmission (Figure 1C, Element 120) based at least in part on the first indication (Figure 2C, Element 230A). The power control bits 230A are used to control the transmit power level of the transmitter 240. Refer to Column 22, lines 32-36.

Receiving a second indication (Figure 2C, Element 230B) of a received quality of a second transmission (Figure 1C, Element 120A), wherein the second indication (Figure 2C, Element 230B) is formed by aggregating a plurality of bits allocated for feedback for the second transmission (Figure 1C, Element 120A). Forward link power control commands based on the signal-to-noise ratio or frame error rate of the data stream 120A are generated at the transmitter; the commands are extracted as power

control bits 230B at the receiver. Refer to Column 12, lines 30-34 and Column 22, lines 26-32.

Adjusting the transmit power level of the second transmission (Figure 1C, Element 120A) based at least in part on the second indication (Figure 2C, Element 230B). The power control bits 230B are used to control the transmit power level of the transmitter 242. Refer to Column 22, lines 32-36.

Referring to claim 2, Lundby et al discloses in Figures 1C and 2C that the first indication (Figure 2C, Element 230A) comprises a power control command that indicates whether to increase or decrease the transmit power level of the first transmission (Figure 1C, Element 120). Each power control command in stream 140a (corresponding to Element 230A) represents "a command to the BS1 indicating that the BS1 should either increase or decrease the transmit power level" (Column 12, lines 34-39).

Referring to claim 6, Lundby et al discloses in Figures 1C and 2C that the transmit power levels for the first (Figure 1C, Element 120) and second (Figure 1C, Element 120A) transmissions are adjusted based solely on the first (Figure 2C, Element 230A) and second (Figure 2C, Element 230B) indications, respectively. Refer to Column 22, lines 32-36.

Referring to claim 10, Lundby et al discloses in Figures 1C and 2C that the first indication (Figure 2C, Element 230A) is received via a first power sub-channel (Figure 1C, Element 140a) and the second indication (Figure 2C, Element 230B) is received via a second power control sub-channel (Figure 1C, Element 140b). The power control

command streams 140a and 140b (corresponding to 230A and 230B, respectively) are multiplexed into a signal power control bit stream 110 back to the base station on a power control channel or subchannel. Refer to Column 13, lines 16-24.

Referring to claim 20, Lundby et al discloses in Figures 1C and 2C a method for adjusting transmit power levels of a plurality of transmission in a wireless communication system. The method comprises:

Receiving and processing a first transmission (Figure 1C, Element 120) to determine a received quality of the first transmission (Figure 1C, Element 120). Forward link power control commands based on the signal-to-noise ratio or frame error rate of the data stream 120 are generated at the transmitter. Refer to Column 12, lines 26-30.

Forming a first indication (Figure 1C, Element 140a) for the received quality of the first transmission (Figure 1C, Element 120). Based on the signal-to-noise ratio or frame error of data stream 120, a series of forward link power control commands 140a are generated. Refer to Column 12, lines 26-30.

Receiving and processing a second transmission (Figure 1C, Element 120A) to determine a received quality of the second transmission (Figure 1C, Element 120A). Forward link power control commands based on the signal-to-noise ratio or frame error rate of the data stream 120A are generated at the transmitter. Refer to Column 12, lines 30-34.

Forming a second indication (Figure 1C, Element 140b) for the received quality of the second transmission (Figure 1C, Element 120A). Based on the signal-to-noise

ratio or frame error of data stream 120A, a series of forward link power control commands 140b are generated. Refer to Column 12, lines 30-34.

Sending the first (Figure 1C, Element 140a) and second (Figure 1C, Element 230b) indications via first (Figure 1C, Element 140a) and second (Figure 1C, Element 140b) power control sub-channels, respectively. The power control command streams 140a and 140b are multiplexed into a signal power control bit stream 110 back to the base station on a power control channel or subchannel. Refer to Column 13, lines 16-24.

Wherein the second indication (Figure 1C, Element 140b) is formed by aggregating a plurality of bits allocated for feedback for the second transmission (Figure 1C, Element 120A). Forward link power control commands based on the signal-to-noise ratio or frame error rate of the data stream 120A are generated at the transmitter; the commands are extracted as power control bits 230B at the receiver. Refer to Column 12, lines 30-34 and Column 22, lines 26-32.

Referring to claim 26, Lundby et al discloses in Figures 2C a power control unit within a base station in a wireless communication system. The power control unit comprises:

A channel processor (Element 220) operative to receive and process a received signal (from Element 210) to recover a first indication (Element 230A) of a received quality of a first transmission and a second indication (Element 230B) of a received quality of a second transmission, wherein the second indication (Element 230B) is

formed by aggregating a plurality of bits allocated for feedback for the second transmission. Refer to Column 22, lines 26-36. Refer also to the rejection of claim 1.

A power control processor (Elements 240 and 242) coupled to the channel processor (Element 220) and operative to receive the first (Element 230A) and second (Element 230B) indications and provide one or more commands to adjust transmit power levels of the first and second transmissions. Refer to Column 22, lines 26-36. Refer also to the rejection of claim 1.

5. Claim 24 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,671,266 to Moon et al.

Referring to claim 24, Moon et al discloses in Figure 5 a power control unit for use in a wireless communication system. The power control unit comprises:

A signal quality measurement unit (Element 55) operative to receive and process a first transmission (orthogonal channel) to provide a first indication for a first metric (SIR) for the first transmission (orthogonal channel). The first SIR measurer calculates an SIR for the orthogonal channel. Refer to Column 10, lines 29-32.

A data processor (Element 56) operative to receive and process a second transmission (quasi-orthogonal channel) to provide a second indication for a second metric (SIR) for the second transmission (quasi-orthogonal channel). The second SIR measurer calculates an SIR for the quasi-orthogonal channel. Refer to Column 10, lines 32-36.

A power control processor (Elements 57 and 58) coupled to the signal quality measurement unit (Element 55) and the data processor (Element 56), the power control



processor (Elements 57 and 58) operative to direct transmission of the first and second indications on the first (Element 59) and second (Element 60) power control sub-channels, respectively. A first power control generator 59 transmits one power control command bit using a power control group according to the result from the comparator 57. A power ratio change command generator 60 adjusts the power ratio using the output of the second comparator 58. Refer to Column 10, lines 36-56.

Wherein the second indication is formed by aggregating a plurality of bits allocated for feedback for the second transmission (quasi-orthogonal channel). A second SIR measurer calculates an SIR of the quasi-orthogonal channel by using the quasi-orthogonal code despread signal and the interference measurer 54 output from the quasi-orthogonal channel. Refer to Column 10, lines 32-36.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,249,683 to Lundby et al in view of U.S. Patent No. 6,671,266 to Moon et al.

Referring to claim 3, Lundby et al do not disclose that the transmit power levels of the first and second transmissions are adjusted together based on the power control command.

Moon et al discloses in Figure 1 that the transmit power levels of the first (Data 1) and second (Data 2) transmissions are adjusted together based on the power control command (from controller 19). The controller 19 generates a gain control signal to be supplied to the gain controllers 17 and 18, corresponding to Data 1 and Data 2, according to a power control command received from the reverse link. Refer to Column 4, lines 28-32 and lines 47-56. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the transmit power levels of the first and second transmissions are adjusted together based on the power control command; the motivation being so that both channels will receive the same power control, thereby maintaining the power ratio between the channels in case one channel requires higher power than the other. Refer to Column 5, line 61 to Column 6, line 22.

Referring to claim 4, Lundby et al do not disclose that a difference between the transmit power levels of the first and second transmission is adjusted based on the second indication.

Moon et al discloses in Figure 4 that a difference (ratio) between the transmit power levels of the first (Element 43a) and second transmission (Element 43b) is adjusted based on the second indication (power ratio change command). The mobile station 45 examines an SIR of the second channel 43b and transmits a corresponding power ratio change message via the control channel to adjust the ratio between the first transmission (Element 43a) and second transmission (Element 43b). The power ratio is constantly changing due to differing channel environments. Refer to Column 9, lines

53-63. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that a difference between the transmit power levels of the first and second transmission is adjusted based on the second indication; the motivation being that by controlling the powers of multiple channels with a single power control command, "it is possible to prevent reduction in the capacity of the reverse link" (Column 9, line 63 to Column 10, line 3).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,249,683 to Lundby et al in view of U.S. Patent No. 6,515,975 to Chheda et al.

Lundby et al do not disclose that the power control command is generated based on a comparison of the received quality of the first transmission against a setpoint.

Chheda et al disclose that the power control command is generated based on a comparison of the received quality of the first transmission (SNR) against a setpoint (threshold). The mobile station estimates a SNR per power control group of a received signal; "the estimation is compared to a threshold and, based on the comparison, a power control, up or down, command is generated" (Column 2, lines 37-45). The SNR threshold changes depending on the quality of the forward link frames. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the power control command is generated based on a comparison of the received quality of the first transmission against a setpoint; the motivation being that there needs to be a threshold to compare a quality of transmission with in order to determine whether or not the power of a system needs to be increased or decreased,

thereby ensuring that the received SNR is equal to the threshold. Refer to Column 2, lines 45-53.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,249,683 to Lundby et al in view of U.S. Patent No. 6,148,208 to Love.

Lundby et al do not disclose that the second indication comprises an erasure indicator bit indicating whether a frame in the second transmission was received correctly or in error or a quality indicator bit indicating the quality of a received frame in the second transmission.

Love discloses that a channel comprises an erasure indicator bit (EIB) indicating whether a frame in a transmission was received correctly or in error or a quality indicator bit (QIB) indicating the quality of a received frame in a transmission. The remote unit can use the EIB on the reverse channel to indicate whether a previous frame received at the remote unit was in error or not. Refer to Column 4, lines 31-43 and Column 8, lines 53-66. The remote unit can also use the QIB on the reverse channel to indicate whether a previous frame received at the remote unit was of low quality or not. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the second indication comprises an erasure indicator bit indicating whether a frame in the second transmission was received correctly or in error or a quality indicator bit (QIB) indicating the quality of a received frame in a transmission; the motivation being that the allows the mobile station to request retransmission of frames in error or frames of low quality.

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,249,683 to Lundby et al. Lundby et al discloses that the wireless communication system is a CDMA system. Refer to Column 9, lines 34-38.

Lundby et al do not disclose that the wireless communication system conforms to cdma2000 standard or W-CDMA standard, or both.

W-CDMA can support voice, images, data and video. W-CDMA, which utilizes a wider carrier than CDMA, can also deliver data at a much faster rate than CDMA. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include that the wireless communication system conforms to cdma2000 standard or W-CDMA standard, or both; the motivation being that W-CDMA can deliver data at a much faster rate than CDMA and can support voice, images, data and video.

#### ***Allowable Subject Matter***

11. Claims 9, 11-18, 21 and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

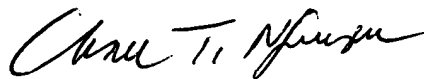
#### ***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Ng whose telephone number is (703) 305-8395. The examiner can normally be reached on M-F; 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nguyen Chau can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. Ng<sup>w</sup>  
April 21, 2004



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SUPERVISORY PATENT EXAMINER  
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